REMARKS

Claims 1-28, 35 and 36 are pending. Claims 1-14, 19, 21 and 24-28 have been allowed. By this Response, claim 35 is amended. Reconsideration and allowance based on the above amendment and following remarks are respectfully requested.

Applicants appreciate the indication of claims 1-14, 19, 21 and 24-28 as being allowed and claims 16 and 18 as containing allowable subject matter.

The Office Action rejects claims 15, 17, 19, 20, 22, 23, 35 and 36 under 35 U.S.C. §103(a) as being unpatentable over Merli, et al. (US 6,088,141) in view of Kight, et al. (US 5,623,357) and Fee, et al. (US 5,914,794). This rejection is respectfully traversed.

For reasons of brevity, applicants remarks in the previous Response dated July 19, 2004 with respect to the applied references are hereby incorporated by reference.

In the present invention as defined by independent claims 15, 20, 22, 35 and 37, a correlation/comparison of optical characteristics of one node with optical characteristics of a second node is made in determining the initiation of a line switch or equipment switch and/or the activation of a fault restoration element.

Specifically, claim 15 recites, *inter alia*, an optical node comprising a plurality of ports; at least one fault restoration element; at least optical sensor

configured to measure a first set of optical characteristics of the channels in the node; at least one transceiver for communicating optical network status information via an inter-node optical communications channel with a neighboring node, the optical network status information including a second set of optical characteristics of the optical channels determined by sensors residing in at least one other node of the optical network; a local controller configured to activate the at least one fault restoration element if a comparison of the first and second sets of optical characters indicates a potential fault requiring activation of the fault restoration element.

Claim 20, recites, *inter alia*, a wavelength division multiplexing optical network comprising a first node containing a first optical sensor, a first transceiver, first local microprocessor for controlling a line switcher in a first set of redundant electrical elements, the first local microprocessor transmitting a first status report on the optical characteristics of the channels in said first node via said first transceiver; a second node containing a second optical sensor, a second transceiver, and a second local microprocessor for controlling a second line switcher and a second said of redundant electrical elements, the second local microprocessor transmitting a second status report on the optical characteristics of the channels in the set second node via said second transceiver; a primary optical fiber line; a protection optical fiber line; wherein each local microprocessor determines whether to perform a line switch or an equipment switch as a function of the optical power characteristics of the local

node correlated with the status reports from the other nodes of the optical network via the inter node channel.

Claim 22 recites, *inter alia,* a method of fault detection and isolation in a node of an optical network, the network including a plurality of nodes coupled to each neighboring node, each node having at least one local optical sensor, each node having at least one optical transceiver for communicating status transports to each neighboring node that is optically coupled to and each node having a local controlling a local line switcher residing in the node, the method comprising the steps of: sensing a loss in a single from a neighboring node via the local optical sensor; monitoring the transceiver to determine if the neighboring node is communicating status reports to the node; and initiating a line switch to redirect traffic to an alternate optical path to restore data traffic if there is both a loss in signal from the neighboring node and the status reports are not received from the neighboring node.

Claim 35 recites, *inter alia,* a method of coordinating the action of the nodes of an optical network to perform a fault detection an isolation network function, each node of the network system creating status reports of fault detection and isolation between optical network nodes, each node including at least one local optical sensor for measuring optical characteristics of the data stream at the local node, at least transceiver for communicating data to each neighboring node that is coupled to via a fiber optical link and each node having a local controller for controlling at least one local restoration element,

the method comprising the steps of : sensing the first set of optical characteristic of the data stream at a first node; updating a channel map of active channels at the first node based on the sensed optical characteristics; communicating the updated channel map to a neighboring second node; sensing a second set of optical characteristics of the data stream at the second node; and comparing the second set of optical characteristics to the channel map to determine if a fault has occurred requiring that the controller of the second node to activate a restoration element.

Claim 35 recites, *inter alia*, a method of fault detection isolation in an optical network having a plurality of optical nodes, each node including at least one local optical sensor for measuring optical characteristics of the data stream at the local node, at least transceiver for communicating data to each neighboring node that it is coupled to via fiber optical link, and each node having a local controlling for controlling at least one local restoration element, the method comprising the steps of: sensing a set of optical characteristics of the data stream at each node; updating a channel map of active channels at each node of the optical network; and communicating the updated channel map to the nodes via the fiber optic link; wherein each local controller compares the optical characteristics measured at the local node to the channel map to determine if a fault has occurred requiring the local controller activate a restoration element.

The Office Action correctly states that Merli fails to teach a monitoring of optical characteristics of other nodes and the sharing of the optical characteristics of other nodes in the network with each other. The Office Action relies on Kight to provide these features deficient in Merli's teachings.

The Office Action alleges that the central processor 82 and overhead processor of Kight detect local and upstream node faults, respectively. The Office Action alleges that these features of Kight provide the teachings of features recited in applicant's claims. Further, the Office Action states that in the section "Response to Arguments" that "Kight is understood to compare data from local remote since it uses the overhead information, which transmits fault information. This fault information must be compared against some preferred values in order to determine that a fault exists, i.e., the local station must be able to interpret the overhead information in terms of acceptable values held at that local station."

As applicants understand, Kight teaches a system for monitoring synchronized optical networks. Kight obtains information, such as optical received power, laser bias current and case temperature within an optical service unit. This information is monitored by the central processor unit 82. Data based upon the monitored information is compared against a <u>threshold</u> value. See column 8, lines 1-15 and column 11, lines 16-65. Based upon the comparison an alarm message may be enacted and provided in an overhead of data forwarded to another network.

It appears to applicants that the Office Action makes conclusionary statements about Kight's teachings that are not supported within Kight's disclosure. The Office Action asserts that fault information must be compared against some preferred values. Kight expressly states that measured data from the sensors are measured against threshold values. Nowhere does it teach or suggest comparing optical characteristics from various nodes. Kight expressly teaches the contrary of measuring optical characteristics of a signal from a node with a threshold value.

Further, the system of Kight uses an optical service unit as a "demarcation between facility and terminal segments of synchronized optical networks." Thus, the optical service unit is used as a monitoring unit of signals that are being transmitted between facilities and terminal segments. The optical service unit monitors the signals based on signal level and predetermined thresholds. An alarm is sent if monitored data is found to be beyond a threshold. The alarm merely identifies a problem, it does not try to correct the problem that is creating the erroneous data.

Thus, Kight also fails to teach, at least one fault restoration element to adjust the operation of the node in response to a fault, as recited in claim 1; determining whether to perform a line switch or an equipment switch as a function of the optical power characteristics of the local node correlated with the status reports from the other nodes, as recited in claim 20; and understanding a line switch to redirect traffic to an alternate optical path to

restore data traffic if there is both a loss and signal from the neighboring node and status reports are not being received from the neighboring node, as recited in claim 22; comparing the second set of optical characteristics to the channel map to determine if a fault has occurred requiring the controller at the second node to activate a restoration element, as recited in claim 35; and wherein each local controller compares the optical characteristics measured at the local node to the channel map to determine if a fault has occurred requiring the local controller activate a restoration element, as recited in claim 36.

Further, regarding claims 35 and 36, Kight does not teach or suggest creating a channel map of active channels based on sensed optical characteristics of the first node, as recited in claim 35 and of each node of the optical network, as recited in claim 36. The Office Action, in fact, fails to recognize and address these features of claims 35 and 36 in the Office Action.

As stated in the Response dated July 19, 2004, it appears that the only possible explanation for suggesting Kight teaches applicant's claimed correlation/ comparison and fault detection and activation method and system is by impermissible hindsight. Although Kight obtains information and compares it with a threshold data to obtain an alarm status if possible of data errors, Kight does not correlate optical characteristics from two or more nodes. This feature of applicant's claims is only discussed within applicant's disclosure, not in the applied references. Thus, hindsight can be the only conclusion for the arguments presented in the Office Action.

Further, Fee fails to remedy any of the deficiencies in the combination of Merli and Kight. Fee is merely applied to teach an element manager that communicates with the entire network.

For at least the above reasons, the combination of Merli, Kight and Fee fail to teach each and feature of the independent claims 15, 20, 22, 35 and 36 as required. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For at lease these reasons, it is respectfully submitted that claims 15, 17, 19, 20, 22, 23, 35 and 36 are distinguishable over the cited art. Favorable consideration and prompt allowance are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings (Reg. No. 48,917) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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